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PATENT APPLICATION

ATTORNEY DOCKET NO. 200210214-1IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s): Brian D. Gregg

Confirmation No.: 8126

Application No.: 10/628,918

Examiner: Mardochee Ghery

Filing Date: 07/29/2003

Group Art Unit: 2188

Title: STORAGE ACCESS SYSTEM AND METHOD FOR IMAGE FORMING DEVICE

Mail Stop Appeal Brief-Patents  
Commissioner For Patents  
PO Box 1450  
Alexandria, VA 22313-1450

## TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on 06/07/2007

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) \$500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:☐ 1st Month  
\$120☐ 2nd Month  
\$450☐ 3rd Month  
\$1020☐ 4th Month  
\$1590☐ The extension fee has already been filed in this application.☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.Please charge to Deposit Account 08-2025 the sum of \$ 500. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees.☒ A duplicate copy of this transmittal letter is enclosed.☐ I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to:  
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**AUG 07 2007****PATENT**  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:	)	Examiner: Mardochee CHERY
Brian D. Gragg	)	
Serial No.: 10/628,918	)	Art Unit: 2188
Filed: July 29, 2003	)	
For: STORAGE ACCESS SYSTEM AND	)	
METHOD FOR IMAGE FORMING	)	
DEVICE	)	
Date of Final Office Action:	)	Attorney Docket No.:
April 12, 2007	)	200210214-1
Notice of Appeal Filed:	)	
June 7, 2007	)	
August 7, 2007	)	

**APPEAL BRIEF**

Mail Stop Appeal Brief – Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

This Appeal Brief is timely provided to support the Notice of Appeal filed June 7, 2007.

**CERTIFICATE OF FACSIMILE**Date of Deposit: August 7, 2007

I hereby certify that these papers are being transmitted to The United States Patent and Trademark Office  
facsimile number (571) 273-8300 on August 7, 2007.

  
Peter Kraguljac

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Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

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**1. Real Party in Interest:**

The real party in interest is Hewlett-Packard Development Company, LP, a limited partnership established under the laws of the State of Texas and having a principal place of business at 20555 S.H. 249 Houston, TX 77070, U.S.A. (hereinafter "HPDC"). HPDC is a Texas limited partnership and is a wholly-owned affiliate of Hewlett-Packard Company, a Delaware Corporation, headquartered in Palo Alto, CA. The general or managing partner of HPDC is HPQ Holdings, LLC.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

## **2. Related Appeals and Interferences**

There are no other prior and/or pending appeals, interferences, or judicial proceedings that are related to, directly affect, or that will be directly affected by or have a bearing on the Board's decision.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

**3. Status of Claims**

Claims 1-27 are pending in the application.

Claims 1-27 stand rejected in the application.

No claims were canceled in the application.

No claims were allowed in the application.

The rejections of claims 1-27 are appealed.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

**4. Status of Amendments**

**No Amendments were filed subsequent to the Final Office Action.**

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

**RECEIVED**  
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**AUG 07 2007**

**5. Summary of Claimed Subject Matter**

Appellant notes that when citations include a paragraph number (e.g. [00025]), the line numbers that follow are counted from the top of the paragraph, not from the top of the page. Additionally, the citations provided denote example portions in the specification that support the corresponding subject matter and are not intended to be the only supporting portion.

**Independent Claim 1**

Claim 1 is directed towards an image forming device and recites a storage device for storing data (specification page 4, paragraph [0014], lines 10-11; Fig. 1, Storage Device 105). Claim 1 further recites a storage access manager configured to coordinate access to the storage device from a plurality of client devices (specification page 4, paragraph [0016], lines 8-12; Fig. 1, Storage Access Manager 135 coordinates access to Storage Device 105 from client A 110 and Client B 120). The client devices communicate with the storage device using at least one uncoordinating communication protocol (specification page 4, paragraph [0016] lines 4-6).

**Independent Claim 11**

Claim 11 is directed to an article of manufacture embodied in a computer-readable medium (specification page 12, paragraph [0040] lines 8-9). The computer-readable medium is for use in an image forming device having a storage device accessible by at least a first communication protocol and a second communication protocol (specification page 3, paragraph [0013] lines 1-3; Fig. 1, Image Forming Device 100 having Storage Device 105 accessible by Communication Protocol A 115). Claim 11 recites first processor executable instructions for causing a processor to maintain a current access state for the storage device (specification page 10, paragraph [0032], lines 1-3; Fig. 3, Storage Access Manager 300 maintains Current State of Storage Device 325).

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

Claim 11 further recites second processor executable instructions for causing a processor to determine a contention status between the current access state and a received access request for accessing the storage device based on a contention logic (specification page 11, paragraph [0035], lines 7-9; Fig. 5, block 515). The contention logic defines rights for simultaneous access to the storage device from the at least the first communication protocol and the second communication protocol (specification pages 7-8, paragraph [0026], lines 5-7; Fig. 3, Contention Logic 315 defines Contention Rules 320). The claim further recites that the at least first communication protocol does not provide notice of an access to the second communication protocol (specification page 4, paragraph [0016], lines 5-8). Claim 11 further recites third processor executable instructions for causing a processor to determine whether the received access request is permissible based on the contention status (specification page 11, paragraph [0035], lines 7-9; Fig 5, block 520).

#### Independent Claim 20

Claim 20 is directed to a method of providing access to a storage device within an image forming device (specification page 10, paragraph [0034], lines 1-2; Fig. 5). The method recites providing access to the storage device in accordance with multiple communication protocols (specification page 4 paragraph [0014], lines 2-3; Fig. 1, Access Manager 135 provides access to Storage Device 105 in accordance with Communication Protocol A 115 and Communication Protocol B 125). At least one of the communication protocols does not provide notice of an access to the other protocols (specification page 4, paragraph [0016], lines 5-8).

Claim 20 further recites coordinating multiple access requests to the storage device based on contention rules that define permissibility of simultaneous access requests from the multiple communication protocols (specification page 11, paragraph [0035], lines 1-3). Additionally, claim 20 recites determining whether a received access request is permissible based on a current access state of the storage device (specification page 11, paragraph [0035],



Docket No. 200210214-1  
Appl. No. 10/628,918  
Appcal Brief dated August 7, 2007

lines 7-9; Fig 5, block 520) and a contention with the received access request based on the contention rules (specification page 12, paragraph [0038], lines 1-3).

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011/030

**AUG 07 2007**

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

**6. Grounds of Rejection to be Reviewed on Appeal**

I. Whether claims 11-19 are unpatentable under 35 U.S.C. §101 as being directed to nonstatutory subject matter.

II. Whether claims 1-27 are unpatentable under 35 U.S.C. §103(a) as being unpatentable over McIntyre (2003/0063305) in view of Quinn (2004/0006616).

III. Whether claims 4, 13, and 21 are unpatentable under 35 U.S.C. §103(a) as being unpatentable over McIntyre (2003/0063305) in view of Quinn (2004/0006616) as applied to claims 1, 11 and 20 above, and further in view of Erlington (2003/0233544).

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

## 7. Argument

**I. Whether claims 11-19 are unpatentable under 35 U.S.C. §101 as being directed to nonstatutory subject matter.**

Claims 11-19 were rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Appellant notes that independent claim 11 is directed to and expressly recites "an article of manufacture." Thus claim 11 is one of the statutory categories of eligible subject matter in 35 U.S.C. §101: "manufacture." Therefore, the rejection is improper on this ground alone and should be reversed.

Furthermore, independent claim 11 recites that the article of manufacture is embodied in "a computer-readable medium" and that the article of manufacture comprises "processor executable instructions." The MPEP and the Federal Circuit has held this claim type to be statutory. For example, MPEP 2106.01 states that this claim type is statutory, citing Lowry:

MPEP 2106.01, Section I, paragraph 2, states:

"In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035." (emphasis added)

For these additional reasons, the §101 rejection is contrary to the MPEP and case law. Claim 11 defines statutory subject matter and the rejection should be reversed.

The Final Office Action also advances the theory that "[a] product is a tangible physical article or object, some form of matter, which a signal is not." (Final Office Action, page 5, third paragraph). This theory is not a legal standard to determine statutory subject matter and incorrectly reflects Patent Office holdings and case law. For example, the U.S. Patent Office's Board of Patent Appeals and Interferences has stated that physical subject

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

matter includes both tangible and intangible matter, and includes electrical signals. Ex parte Bilski, Board of Patent Appeals and Interferences, Appeal number 2002-2257, (Sept. 26, 2006), see pages 6, 17, 27, 37, and 38 (nonprecedential).

In the Bilski opinion, the Board of Patent Appeals stated:

"This perpetuates the misunderstanding that "transformation requires transformation of a tangible object or article, contrary to cases that explain that the subject matter transformed can be physical, yet intangible, phenomena such as electrical signals. See In re Schrader, 22 F.3d 290, 295 n.12, 30 USPQ2d 1455, 1459 n.12 (Fed. Cir. 1994)..." Id. at 37.

"... Thus, it is apparent that changes to intangible subject matter representative of or constituting physical activity or objects are included in this definition"); citing Lundgren, 76 USPQ2d at 1398-99. Id. at 37. [Emphasis in original]

Therefore the rationale of the rejection incorrectly characterizes signals per se and is contrary to case law. The rejection is improper and cannot stand.

The burden is on the Patent Office to set forth a prima facie case of unpatentability (MPEP §2106 IV(B)). The appropriate test must be applied and "when evaluating the scope of a claim, every limitation in the claim must be considered. USPTO personnel may not dissect a claimed invention into discrete elements and then evaluate the elements in isolation." (MPEP §2106 II (C)). Merely picking the term "signals" or "carrier wave/pulse" from the specification and rejecting the entire claim is a improper dissection of elements and an improper evaluation in isolation. The rejection is improper for this additional reason and should be reversed.

Furthermore, the Examiner is basing the rejection on improperly importing limitations from the specification into the claims. Claim 11 does not recite "signals" or "carrier waves." This violates MPEP 2111.01(II). Thus, the rejection is improper for this additional reason and should be reversed.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

Therefore, independent claim 11 is directed to subject statutory matter, namely, an article of manufacture. The §101 rejection of claim 11 and dependent claims 12-19 is improper and should be reversed.

**II. Whether claims 1-27 are unpatentable under 35 U.S.C. §103(a) as being unpatentable over McIntyre (2003/0063305) in view of Quinn (2004/0006616).**

**Independent Claim 1**

Claim 1 recites an image forming device comprising a storage access manager configured to coordinate access to the storage device from a plurality of client devices that communicate with a storage device using at least one uncoordinating communication protocol. An applicant may be their own lexicographer. The specification of the subject application provides an example of uncoordinating communication protocols as, "uncoordinating communication protocols include protocols from different devices that may compete for access to the storage device 105 where at least one protocol does not provide notice of the access to the other protocol or device." (specification, paragraph [0016]). When a protocol does not provide notice of the access, other devices are not aware of the access (specification page 7, [0024]). As such, the access is not coordinated and hence the term uncoordinating protocol. This meaning is consistent with the ordinary meaning of something that is "uncoordinated." McIntyre and Quinn fail to teach or suggest this feature and fail to establish a prima facie obviousness rejection.

McIntyre teaches a document production system for setting, controlling, querying and saving printer control settings (McIntyre, Abstract). The document production system 100 includes a printer control program 150 resident on, or accessible to, a computer 110, or computing device (McIntyre, paragraph [0021]). One or more printers 120, or printing devices, may be in operable communication with the computer 110 (McIntyre, paragraph [0021]). The printers 120 may be controlled by the printer control program 150 using computer 110 (McIntyre, paragraph [0021]). McIntyre explains that printers 120

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appcal Brief dated August 7, 2007

communicate with computer 110 and other computing devices using serial cables, parallel cables, SCSI ports, USB ports, IR ports, or other suitable wired or wireless communication technologies (McIntyre, paragraph [0023]). Individual printers 120 may be connected, or accessible to, a single computing device, or multiple computing devices, which make up the network system (McIntyre, paragraph [0023]).

The Office Action provides "McIntyre does not specifically [sic] client devices that communicate with the storage device using at least one uncoordinating communication protocols as required." (Final Office Action, page 13). Quinn was cited to cure this deficiency, but as explained in the following, it does not.

Quinn teaches techniques for managing a storage environment. (Quinn, Abstract). Quinn further provides "[e]mbodiments of the present invention handle the necessary translations between the high-level commands and the low-level storage array-specific commands or protocols." (Quinn, Abstract). The Office Action provides:

Quinn discloses client devices that communicate with the storage device using at least one uncoordinating communication protocol [clients may use different message types/formats and communication protocols to communicate requests to command requests to command servers 208; par. 47; See also claim text 3] to provide improved techniques for managing storage environments [par. 7].  
(Final Office Action, pages 13).

The portion of Quinn relied upon in the Office Action discloses "different message types/formats and communication protocols." (Quinn, paragraph [0047]). However, reliance on paragraph [0047] is misplaced. Appellant respectfully submits that Quinn does not teach or suggest coordinating access to the storage device from a plurality of client devices that communicate with a storage device using at least one uncoordinating communication protocol.

Referring to Quinn paragraph [0047], the Final Office Action states,

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

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Quinn discloses "client devices communication with the storage device using at least one uncoordinating communication protocol", verbatim in par. [0047].  
(Final Office Action, page 7, second paragraph).

Appellant respectfully disagrees. No such statement is found verbatim in paragraph [0047] of Quinn as the Examiner alleges. Paragraph [0047] recites:

[0047] Client applications 212 may include applications that use services and APIs provided by command server 208. Examples of client applications 212 include storage management applications, third party applications, other command server 208 applications, and other applications. Client applications may use different message types/formats and communication protocols to communicate command requests to command server 208. Examples include XML format, HTTP format, command line interface format, various proprietary formats, and others.  
(Quinn, paragraph [0047])

Reading paragraph [0047], there is no disclosure of "uncoordinating communication protocol" and certainly no verbatim disclosure. The Examiner's reliance on Quinn is misplaced. Furthermore, generically mentioning different communication protocols does not automatically mean or suggest uncoordinating protocols without an actual teaching. Even looking for related functionality, the cited sections of Quinn do not teach or suggest anything about protocols that do not provide notice of access to other protocols or devices. Thus one of ordinary skill in the art would not interpret Quinn to disclose controlling uncoordinating protocols as alleged by the Office Action.

As such, the rejection is based upon an incorrect reading of Quinn and flawed reasoning using a sentence that generically mentions "communication protocols to communicate command requests to command server 208." Based on this sentence, the rejection makes two improper conclusions, (1) that the client devices use an uncoordinating communication protocol, and (2) that the command server 208 is configured to coordinate access to the storage device from a plurality of client devices that communicate with a storage device using at least one uncoordinating communication protocol. Neither of these conclusions are supported by the paragraph [0047]. A generic reference to "communication

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

**AUG 07 2007**

protocols" fails to teach or suggest the recited elements of claim 1 and fails to teach or suggest the recited configuration of the storage access manager of claim 1. Rather, the conclusions of the rejection are based upon misinterpretation and unsupported alleged facts. Quinn fails to support the rejection for which it is relied upon and the rejection is improper.

Thus Quinn fails to cure the deficiencies of McIntyre and fails to establish a prima facie obviousness rejection. The rejection of claim 1 is improper and cannot stand. As such, the rejections of dependent claims 2-10 are also improper and should be reversed.

Independent Claim 11

Claim 11 recites second processor executable instructions for causing a processor to determine a contention status between the current access state and a received access request for accessing the storage device based on a contention logic, the contention logic defining rights for simultaneous access to the storage device from the at least first communication protocol and the second communication protocol where the at least first communication protocol does not provide notice of an access to the second communication protocol, and, third processor executable instructions for causing a processor to determine whether the received access request is permissible based on the contention status. McIntyre and Quinn fail to teach or suggest this feature and thus fail to establish a prima facie obviousness rejection. The rejection cannot stand.

In rejecting claim 11, the Final Office Action states the deficiencies in McIntyre as:

"McIntyre does not specifically teach second processor executable instructions for causing a processor to determine a contention status between the current access state and a received access request for access request for accessing the storage device based on a contention logic, the contention logic defining rights for simultaneous access to the storage device from the at least first communication protocol and the second communication protocol as required." (Office Action, page 16).



Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

The Office Action then cites Quinn to cure these deficiencies. The office action relies on Quinn paragraphs [0052], [0063], and [0069], which discuss an "AddVolume" agent and providing "exclusive access" (locked access) to a storage array (Final Office Action, page 8). Appellant respectfully submits that providing exclusive access to a storage array is the opposite of providing simultaneous access. The purpose and function of providing exclusive access to one device is to prohibit all other accesses from other requesting devices. This means that all other accesses are locked out and no simultaneous access occurs. None of the cited sections of Quinn discuss providing simultaneous access and thus it is not surprising that there is no mention of a contention logic that defines rights for simultaneous access. Accordingly, the reliance on Quinn is misplaced and Quinn fails to support the rejection.

The Office Action alleges that gaining exclusive access "intrinsically results from a simultaneous access conflict" (Office Action page 8, line 9-10). Since this statement is not supported by the actual disclosure from Quinn, it is in effect an Office Notice of Fact taken by the Examiner. MPEP §2144.03 warns of taking Office Notice only "in limited circumstances." Such notice is not warranted in the present case. For example, when a system provides exclusive access to a device, it may be implemented to always provide exclusive access for each access request to ensure that no conflicts occur. The exclusive access may result from a predetermined implementation to avoid simultaneous access. Thus, it is not "intrinsic" that exclusive access results from a simultaneous access conflict as alleged by the Examiner.

Therefore, one of ordinary skill in the art would not find such an interpretation from reading and understanding Quinn. The rejection is improper for this reason. Furthermore since Quinn fails to support the interpretation advanced by the Examiner, it appears that the interpretation is based on improper hindsight. The rejection is improper. For this additional reason, a prima facie obviousness rejection has not been established and the rejection cannot stand.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

The Final Office Action of page 16 provides additional reasoning for rejecting claim 11. Here, the rejection relies on Quinn based on a rationale that it teaches a first communication protocol and a second communication protocol. However, nowhere in the rationale does it address the entire claim language of "where the at least first communication protocol does not provide notice of an access to the second communication protocol." Thus, a prima facie rejection has not been established and the rejection cannot stand.

Finally, the motivation to combine McIntyre and Quinn is provided on page 17 of the Final Office Action. The motivation is stated as, "In order to allow exclusive access or locking to the storage device." As explained previously, providing exclusive access is contrary to providing simultaneous access. Thus, the motivation to combine does not apply and is irrelevant to claim 11. And in particular, the motivation is irrelevant to the claimed features of determining a contention status based on a contention logic, the contention logic defining rights for simultaneous access. The motivation is improper and violates §103 for combining references. Accordingly, the combined references still fail to teach or suggest each and every element of claim 11 and fail to support a proper obviousness rejection. The rejection must be reversed.

As such, Quinn does not teach or suggest simultaneous access to the storage device from the at least first communication protocol and the second communication protocol where the at least first communication protocol does not provide notice of an access to the second communication protocol. Further, Quinn does not teach or suggest contention logic defining rights for simultaneous access to the storage device from the at least first communication protocol and the second communication protocol.

Quinn fails to cure the deficiencies of McIntyre and fails to support a proper obviousness rejection. The rejection cannot stand. Accordingly, the rejections of dependent claims 12-19 are also improper and should be reversed.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

### Independent Claim 20

Claim 20 was rejected simply by incorporating the rationale from the rejection of claims 1, 4 and 11 (Final Office Action, bottom of page 19). The specific elements from claim 20 were not addressed.

Claim 20 recites "providing access to the storage device in accordance with multiple communication protocols where at least one of the communication protocols does not provide notice of an access to the other protocols." However, no rationale has been provided in the Final Office Action that addresses the language of "where at least one of the communication protocols does not provide notice of an access to the other protocols." No citations to references have been provided that teach or suggest this element. Indeed, the rationale under claim 11 only refers to a first and second communication protocol but fails to address the recited language of "does not provide notice of an access to the other protocols." Due to this deficiency alone, a prima facie obviousness rejection has not been established and the rejection cannot stand.

Claim 20 further recites "coordinating multiple access requests to the storage device based on contention rules that define permissibility of simultaneous access requests from the multiple communication protocols." McIntyre and Quinn, individually and/or in combination, fail to teach or suggest this feature and thus a prima facie obviousness rejection has not been established for claim 20.

As discussed above, McIntyre does not teach or suggest providing access to a storage device in accordance with multiple communication protocols where at least one of the communication protocols does not provide notice of an access to the other protocols. Further, McIntyre does not teach or suggest coordinating multiple access requests to the storage device based on contention rules that define permissibility of simultaneous access

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

requests from the multiple communication protocols. Quinn does not cure the shortcomings of McIntyre.

Quinn teaches techniques for providing exclusive access to a device, not providing simultaneous access (Quinn, paragraphs [0052], [0063], and [0069]). As explained under claim 11, the Examiner's reliance on Quinn is misplaced. The motivation to combine the references is also misplaced. Thus, Quinn fails to teach or suggest coordinating multiple access requests to the storage device based on contention rules that define permissibility of simultaneous access requests from the multiple communication protocols as recited in claim 20. A prima facie obviousness rejection has not been established for claim 20 and the rejection should be reversed. Accordingly, the rejections of dependent claims 22-27 are also improper and should be reversed.

**III. Whether claims 4, 13, and 21 are unpatentable under 35 U.S.C. §103(a) as being unpatentable over McIntyre in view of Quinn as applied to claims 1, 11 and 20 above, and further in view of Erlington (2003/0233544).**

Claims 4, 13, and 21 depend from independent claims 1, 11, and 20, respectively. The rejections of independent claims 1, 11, and 20 have been shown to be improper. Thus, the rejection of their dependent claims 4, 13, and 21 are also improper. Combining Erlington fails to cure these deficiencies. Therefore the Office Action has not established a prima facie case for rejecting these claims and the rejection should be reversed.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

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Conclusion

For the reasons set forth above, a prima facie obviousness rejection has not been established for any claim. All rejections have been shown to be improper. Appellant respectfully believes that all pending claims 1-27 patentably and unobviously distinguish over the references of record and that the rejections should be reversed. Furthermore, all claims define statutory subject matter. Appellant respectfully requests that the Board of Appeals overturn the Examiner's rejections and allow all pending claims. An early allowance of all claims is earnestly solicited.

Respectfully submitted,

August 7, 2007

Date



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Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

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**8. Claims Appendix**

1. An image forming device comprising:  
  
a storage device for storing data; and  
  
a storage access manager configured to coordinate access to the storage device from a plurality of client devices that communicate with the storage device using at least one uncoordinating communication protocol.
2. The image forming device of claim 1 wherein the storage access manager is configured to coordinate simultaneous access to the storage device from a sector-level communication protocol and a file-level communication protocol.
3. The image forming device of claim 2 wherein the sector-level communication protocol includes a universal serial bus protocol and the file-level communication protocol includes a common internet file system protocol.
4. The image forming device of claim 1 wherein the storage access manager further includes a contention matrix configured to determine contention states for accessing the storage device.
5. The image forming device of claim 1 further including a universal serial bus communication port for communicating to the storage device and, a network communication port for communicating to the storage device.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

6. The image forming device of claim 1 further including a plurality of universal serial bus communication ports configured to provide access to the storage device.
7. The image forming device of claim 1 wherein the storage device includes logic to notify a client device whether an access request for the storage device is permissible.
8. The image forming device of claim 1 wherein storage access manager is embodied as logic.
9. The image forming device of claim 1 wherein storage device is one or more memory cards.
10. The image forming device of claim 1 wherein the storage access manager includes storage access manager means to coordinate the access to the storage device.
11. An article of manufacture embodied in a computer-readable medium for use in an image forming device having a storage device accessible by at least a first communication protocol and a second communication protocol, the article of manufacture comprising:
  - first processor executable instructions for causing a processor to maintain a current access state for the storage device;
  - second processor executable instructions for causing a processor to determine a contention status between the current access state and a received access

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

request for accessing the storage device based on a contention logic, the contention logic defining rights for simultaneous access to the storage device from the at least first communication protocol and the second communication protocol where the at least first communication protocol does not provide notice of an access to the second communication protocol; and  
third processor executable instructions for causing a processor to determine whether the received access request is permissible based on the contention status.

12. The article of manufacture as set forth in claim 11 wherein the contention logic is configured to coordinate simultaneous access to the storage device by one or more clients using the first communication protocol and one or more clients using the second communication protocol.

13. The article of manufacture as set forth in claim 11 wherein the contention logic is configured as a contention matrix that defines a plurality of access types to the storage device and whether simultaneous access is permissible between each other.

14. The article of manufacture as set forth in claim 11 wherein the contention logic is configured based on the first communication protocol being a sector-level protocol and the second communication protocol being a file-level protocol.



Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

15. The article of manufacture as set forth in claim 11 wherein at least a first communication protocol and the second communication protocol include at least one uncoordinating communication protocol.
16. The article of manufacture as set forth in claim 11 further including fourth processor executable instructions for causing a processor to notify a first client when access to the storage device occurs by a second client.
17. The article of manufacture as set forth in claim 11 wherein the at least first and the second communication protocols include the same protocol.
18. The article of manufacture as set forth in claim 11 further including fifth processor executable instructions for causing a processor to assign an identifier to each client requesting access to the storage device.
19. The article of manufacture as set forth in claim 11 wherein the second processor executable instructions include storage access manager means for controlling access to the storage device.
20. A method of providing access to a storage device within an image forming device, the method comprising the steps of:

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

providing access to the storage device in accordance with multiple communication protocols where at least one of the communication protocols does not provide notice of an access to the other protocols;

coordinating multiple access requests to the storage device based on contention rules that define permissibility of simultaneous access requests from the multiple communication protocols; and

determining whether a received access request is permissible based on a current access state of the storage device and a contention with the received access request based on the contention rules.

21. The method as set forth in claim 20 further including defining the contention rules based on types of access requests and a type of communication protocol associated with each access request.
22. The method as set forth in claim 20, the providing access step including providing access based on a sector-level communication protocol and a file-level-communication protocol.
23. The method as set forth in claim 20 further including notifying a client requesting access to the storage device whether access is permissible.
24. The method as set forth in claim 20 further including assigning an identifier to each access request received.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

25. The method as set forth in claim 20 further including notifying a first client when a second client accesses the storage device.

26. The method as set forth in claim 20 wherein the multiple communication protocols include at least one uncoordinating communication protocol.

27. The method as set forth in claim 20 wherein the multiple communication protocols include the same communication protocol.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appeal Brief dated August 7, 2007

**9. Evidence Appendix**

None. There is no extrinsic evidence.

Docket No. 200210214-1  
Appl. No. 10/628,918  
Appcal Brief dated August 7, 2007

**10. Related Proceedings Appendix**

None. There are no related proceedings.